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Christian Österle

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More than 100 versions on one system

Fully automated assembly of SCHUKO plugs reaches a new performance level

The industrial, trade and construction sectors have been using the SCHUKO plug, invented by ABL in 1925, for almost 100 years. The company can now produce more than 100 versions of SCHUKO plugs and couplings quickly and flexibly on a new assembly system supplied by special machine builder AS Automation. This is also made possible by the highly flexible Multi-Carrier-System MCS® as well as numerous other electric and pneumatic automation products from Festo.

Thanks to the reliable materials used, such as the high-performance polymer Elamid or the 2K technology, the plugs and couplings from ABL are incredibly strong. During tests, they even withstood being rolled over by a four-tonne truck. That's why they are the first choice for the industrial, trade and construction sectors. The company, which is based near Nuremberg, also made a name for itself as a pioneer of the energy transition by developing a range of wall boxes and charging stations for electro mobility.

Versatile and flexible

"To achieve this level of quality, we need suitably flexible assembly systems. This is precisely what special machine builder AS Automation in Bamberg was able to provide," explains Dr Loos, Chief Operations Officer at ABL. The new system now assembles over one hundred different versions of SCHUKO plug connectors from 21 different individual parts. "The modular design of the stand-alone rotary and linear indexing machines from AS Automation enables the different process steps and technologies to be quickly integrated and to be precisely tailored to the needs of the end customer," adds Ingo Brendl, Managing Partner at the special machine builder.

AS Automation was exactly the right partner for the connectivity specialist ABL, as AS Automation is able to plan and build fully automated assembly and packaging systems, from the initial idea to the ready-to-install customised machine. The assembly systems from AS Automation are advantageous for customers in all industries who want to assemble and process complex, multi-part products quickly and reliably. The company has acquired a great deal of expertise with systems for the cosmetics industry, the electrical industry, medical technology and the pharmaceutical industry, for example.

Feeding in many individual components

"The challenge when assembling SCHUKO plugs is the feeding in and assembly of a large number of individual components in a small space. All processes, from assembling the base bodies and the pre-assembly of the housings to putting all the components together, are carried out in a compact system design," continues

Brendl.

Thanks to its modular design, the system can be adapted to different assembly processes and technologies. "Because of the integrated Multi-Carrier-System from Festo, the movement of the workpiece carriers is path-controlled and takes our assembly and workpiece processing capabilities to a new level," says Brendl. The oval configuration of the Multi-Carrier-System enables a very compact system design while simultaneously offering high dynamic response and precision in operation. In addition, the workpiece carriers are moved with optimal cycle times in the processing area and are fed back underneath via a belt.

Workpiece carriers can be freely positioned

"The MCS® in combination with electric axes from Festo form a Cartesian 3D gantry that offers us a lot of freedom to position the product components in relation to each other and that gives us the opportunity to realise new assembly and machining processes. The free, independent positioning of the workpiece carriers along the linear section provides us with new options for the design of our systems," says Julius Albrecht, Project Manager for special machine building at AS Automation, describing the advantages of using the Multi-Carrier-System. The mapping of the carriers as a Siemens technology object also means that control is just as intuitive and simple as with any other electric axis from Festo, a fact that is greatly appreciated.

As the centrepiece of the system, the MCS® is only a part of the automation solutions from Festo that are used in the system. There are many other electric and pneumatic products from the wide-ranging modular system that contribute to the implementation of the assembly processes. The electromechanical solutions, in particular, can realise highly dynamic assembly processes.

In addition to the MCS®, the company uses the extensive range of electric axes, controllers and motors from Festo. For example, 34 linear gantries with EGC and EGSC axes as well as other individual axes are used in the system. The new generation of motors EMMT together with the new servo drives CMMT from Festo are also used in the application, and can be easily and intuitively integrated into the Siemens control system.

Digital engineering tools

The service from Festo starts well before the actual system is built. "Digital engineering tools help us to quickly select the right components. We also really appreciate the personal contact with the sales engineers from Festo, who always support us right from the beginning of the project and make sure that we select and configure the most suitable components," explains Albrecht.

"For us, Festo is an indispensable partner in automation technology. In terms of the continuous further development of pneumatic drives to electric axes and the introduction of innovative transport systems such as the Multi-Carrier-System MCS®, Festo is constantly providing us with new opportunities to make our systems faster, more precise and more efficient," says Albrecht, who is looking forward to the next joint system projects.

Press Images



SCHUKO plug

SCHUKO plug from the company ABL



Machine AS Automation

In the fully automated assembly system, over 100 different versions of SCHUKO plugs are assembled from 21 different individual parts.



Festo's electric automation at AS Automation

Automation solutions from Festo offer a wide-ranging modular system for the realisation of assembly processes. This includes the continuous further development of pneumatic drives and electric axes to the introduction of innovative handling ...



Partnership AS Automation, ABL, Festo

Partnership-based collaboration between ABL, AS Automation and Festo ensured maximum efficiency for the new system during development (from left to right: Ingo Brendl, Dr Manuel Loos, Torsten Liesaus)



Dr Manuel Loos, Chief Operations Officer ABL GmbH

Dr Manuel Loos, Chief Operations Officer ABL GmbH



Ingo Brendl, Managing Partner of AS Automation GmbH

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Julius Albrecht, Project Manager for special machine building at AS Automation GmbH

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